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EXAMINER
LEURIG, SHARLENE L

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 10/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/888,954

Examiner

Sharlene Leurig

Applicant(s)

GEORGE ET AL.

Art Unit

2879

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 40-43, 45 and 46 is/are rejected.
- 7) ☒ Claim(s) 44 and 47-50 is/are objected to.
- 8) ☒ Claim(s) 1-50 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Claims 1-39 stand withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions of a process of manufacturing an EL lamp material and an apparatus for manufacturing EL lamp material, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 4.

Process of manufacture claims 1-10 and 21-39, previously nonelected with traverse, are independent and distinct from the previously nonelected apparatus claims 11-20 because the apparatus claims invoke 35 U.S.C. 112 sixth paragraph, means plus function, which incorporates the limitations within the specification. Therefore the "means for coating a continuous coil of an indium tin oxide polyester film (ITO/PET) substrate with a layer of an organic binder" could be a gravure roller for direct or indirect application of the organic binder layer to the ITO surface, which is not included in the independent process claims 1 or 21.

Process of manufacture claims 1-10 and 21-39, previously nonelected with traverse, are independent and distinct from the previously elected product claims 40-50 because the product recites the limitation of the front electrode being a "laminate comprising an indium tin oxide layer coated on a continuous coil polyester film" recited in claim 40, which is distinct from the "continuous coil of an indium tin oxide polyester film (ITO/PET) substrate" recited in claims 1 and 21, which can be a PET matrix with an

ITO dopant or a with intermixed, non-laminated layers of ITO and PET, neither of which is the laminated structure of the product claim 40.

Previously elected product claims 40-50 are independent and distinct from the previously nonelected apparatus claims 11-20 because the product recites the limitation of the front electrode being a "laminate comprising an indium tin oxide layer coated on a continuous coil polyester film" recited in claim 40, which is distinct from the "continuous coil of an indium tin oxide polyester film (ITO/PET) substrate" recited in claim 11, which can be a PET matrix with an ITO dopant or a with intermixed, non-laminated layers of ITO and PET, neither of which is the laminated structure of the product claim 40.

Claims 1-39 remain finally restricted from claims 40-50.

2. This application contains claims 1-39 drawn to inventions nonelected with traverse in Paper No. 4. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Response to Amendment

3. The amendment filed on July 24, 2003 has been entered and acknowledged by the Examiner.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 40 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kardon (4,560,902) in view of Appelberg (5,045,755) (of record), further in view of Kawachi (4,767,679) and further in view of Mori et al. (4,956,031).

Kardon discloses a front electrode comprising an indium tin oxide layer coated on a polyester film (column 5, lines 57-59), and an organic binder layer and phosphor particles mixed with the binder layer are deposited on the ITO (column 5, lines 39-43 and 54-56). Kardon further discloses a rear electrode comprised of aluminum foil coated with barium titanate (column 5, lines 46-53) laminated to the front electrode with the organic binder layer facing the barium titanate layer (column 5, lines 60-65) (Figure 1).

Kardon lacks disclosure of phosphor particles deposited as a monolayer on an organic binder layer.

Appelberg teaches a monolayer of phosphor particles deposited on a binder layer (column 6, lines 30-50) to allow the conductive coating and the rear electrode to be spaced closely together to thereby lower the required driving voltage of the lamp (column 7, lines 5-10).

Therefore regarding claim 40, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kardon's EL lamp having a phosphor coating with an organic binder having a monolayer of phosphor deposited thereon in order to lower the driving voltage of the lamp, as taught by Appelberg.

Kardon further lacks a continuous coil of either the front or rear electrodes or of the laminate of the two.

Mori teaches an EL lamp formed with continuous coils of front and rear electrode materials being laminated to form a continuous coil of the EL lamp (Figure 1) in order to form an elongated EL element capable of low cost and ease of manufacture (column 2, lines 5-7).

Therefore regarding claim 40, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kardon's EL lamp to be formed of continuous coils of rear and front electrodes and their final laminate in order to form an elongated EL element capable of low cost and ease of manufacture, as taught by Mori. Furthermore, the phrase "continuous coil" can be interpreted in light of the common definitions of those words, "continuing in time or space without interruption" and "a structure consisting of something wound in a continuous series of loops", respectively. Therefore anything having any length of uninterrupted structure that is flexible enough to be coiled could be considered a "continuous coil".

Kardon further lacks disclosure of the aluminum foil of the rear electrode being formed with a polyester film.

Kawachi teaches an EL lamp having a complex film comprising aluminum foil and polyester in order to produce a moisture-proof film (column 3, lines 7-9).

Therefore regarding claim 40, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kardon's EL lamp having a rear electrode formed of aluminum foil with an added polyester film in order to provide a moisture-proof layer, as taught by Kawachi.

Regarding claim 41, Kardon lacks a UV-curable organic binder.

Appelberg teaches an organic binder (epoxy adhesive) layer that is UV-curable (column 5, lines 34-38) and a phosphor particle layer that is set to a predetermined thickness (column 6, lines 46-48) prior to laminating the front and rear electrode laminates (column 6-8). The Examiner notes that the claim limitation of the phosphor layer being formed prior to the lamination of the front and rear electrodes is drawn to a process of manufacturing, which is incidental to the claimed apparatus. It is well established that a claimed apparatus cannot be distinguished over the prior art by a process limitation. Consequently, absent a showing of an unobvious difference between the claimed product and the prior art, the subject product-by-process claim limitation is not afforded patentable weight (see MPEP 2113). Appelberg teaches using a UV-curable organic binder in order to quickly cure the adhesive (column 7, lines 42-43).

Therefore regarding claim 41, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kardon's EL lamp with a UV-curable organic binder layer in order to expedite production, as taught by Appelberg.

6. Claims 42, 43, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kardon (4,560,902) in view of Appelberg (5,045,755) (of record), further in view of Kawachi (4,767,679) and further in view of Mori et al. (4,956,031) as applied to claims 40 and 41 above, and even in further view of Kobayashi et al. (5,229,628) (of record).

Kardon, Appelberg, Kawachi and Mori in combination disclose and teach an EL lamp having all the limitations discussed above.

Appelberg teaches an EL lamp material having a rear electrode that is cut to a predetermined depth through the aluminum foil polyester film to produce a split-electrode EL lamp having at least two electrically isolated rear electrode areas (column 11, lines 38-40).

Appelberg lacks disclosure of a barium titanate layer being partially grooved to produce a split-electrode EL lamp because he lacks disclosure of a barium titanate layer.

Kardon, Appelberg, Kawachi and Mori in combination lack disclosure of a rear electrode cut create a split-electrode EL lamp.

Regarding claim 42, Kobayashi teaches a rear electrode cut a predetermined depth through both the aluminum foil and barium titanate layer (column 13, lines 12-16 and line 25) to produce a split-electrode EL lamp having at least two electrically isolated rear electrode areas (Figure 1, elements 4, 5) with uniform light distribution (column 13, lines 50-52).

Regarding claim 43, Kobayashi teaches the rear electrode being cut in the above-described manner to produce a split-electrode EL lamp having at least two electrically isolated rear electrodes of equal area to emit light of equal brightness (column 13, lines 50-52).

Regarding claim 45, Kobayashi teaches multiple cuts through the rear electrode (Figure 1, elements 4, 5) to produce a split-electrode EL lamp having multiple pairs of electrically isolated rear electrode areas wherein light is emitted in the area of each pair of multiple pairs (since all the electrode areas formed by the cuts can be grouped into

pairs) to produce special effects lighting, where the uniform lighting effect is interpreted as being a special effect (column 13, lines 50-52).

Regarding claim 46, Kobayashi teaches every electrically isolated rear electrode area in conjunction with an electrical connector in contact with the aluminum foil (Figure 1, element 5) for powering the EL lamp.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Kardon's EL lamp having a phosphor coating with an organic binder having a monolayer of phosphor deposited thereon in order to lower the driving voltage of the lamp, as taught by Appelberg, to modify it further to be formed of continuous coils of rear and front electrodes and their final laminate in order to form an elongated EL element capable of low cost and ease of manufacture, as taught by Mori, to modify it further with a rear electrode formed of aluminum foil with an added polyester film in order to provide a moisture-proof layer, as taught by Kawachi, to modify it further with a UV-curable organic binder layer in order to expedite production, as taught by Appelberg, and to further modify the lamp with the rear electrode being cut to a predetermined depth through both the aluminum foil layer and the barium titanate layer, as taught by Kobayashi, to produce electrically isolated electrode areas in order to provide a lamp with more even light distribution.

Response to Arguments

7. Applicant's arguments, see paper number 6, filed on July 24, 2003, with respect to the rejection(s) of claim(s) 40 and 41 under Appelberg (5,045,755) in view of Hora

(6,107,735) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Kardon (4,560,902) in view of Appelberg (5,045,755) (of record), further in view of Kawachi (4,767,679) and further in view of Mori et al. (4,956,031).

8. Applicant's arguments filed on July 24, 2003 have been fully considered but they are not persuasive.

The applicant has argued that claims 42, 43, 45 and 46 are allowable over the prior art of record, namely over Kobayashi et al. (5,229,628) because Kobayashi's current limiting layer (4) is "not designed as an insulating layer, but as a partially conductive layer" (page 21).

A partially conductive layer is synonymous with an insulating layer, and furthermore, the current limiting layer of Kobayashi is electrically resistant (column 13, line 44) and therefore insulating.

The applicant further argued that the thickness of Kobayashi's current limiting layer is different from the applicant's barium titanate layer (page 21) and that the driving voltage of the Kobayashi device is different from the driving voltage of the claimed device (page 22).

The thickness of the barium titanate layer and the driving voltage of the device are not limitations of the claims, and therefore cannot distinguish it over the prior art.

The applicant further argued that the Kobayashi EL device, being DC-driven and formed with diamond-scribing, is different from the EL device of the claimed invention

and therefore one of ordinary skill in the art would not be motivated to look to the Kobayashi reference (page 22 and 23).

The Examiner maintains that Kobayashi teaches an EL device having electrically isolated rear electrodes, shown in Figure 1, where element 5 denotes multiple cathode electrodes that have been formed by scribing the layer. Since Kobayashi's device produces images of different graphics and letters, the cathodes must be electrically isolated in order to turn some pixels on and others off at different times. Regarding the applicant's arguments on the substrate disclosed by Kobayashi, the reference is not intended to disclose each and every limitation of the claimed invention, including the flexible PET substrate, but only a structure having electrically isolated rear electrodes. The other limitations of the rejected claims are met by the combination of the other prior art references. Furthermore, the efficiency of the device and problems of arcing are not limitations of the claims, and therefore cannot be used to distinguish the claimed invention over the prior art.

Therefore the rejection of claim 42 is maintained.

Regarding claim 43, the applicant has argued that Kobayashi does not teach an EL lamp having a split-electrode with "exactly" two equal areas of equal brightness.

Claim 43 does not include the limitation of the split-electrode having exactly two areas, only at least two areas of equal brightness. Kobayashi discloses at least two areas (Figure 1, element 5) of equal brightness (column 13, lines 17-20).

Therefore the rejection of claim 43 is maintained.

Regarding claim 45, the applicant has argued that Kobayashi does not teach an EL lamp having a split-electrode with "multiple cuts in the rear electrode layer for producing multiple pairs of lamps for special effects" (page 24). The applicant has further argued that high cost would be prohibitive in using Kobayashi's EL lamp as an accent lamp.

The Examiner maintains that Kobayashi does disclose the claimed limitation of "multiple cuts" producing "multiple pairs of electrically isolated areas" (5), a limitation that is met regardless of the cost.

Therefore the rejection of claim 45 is maintained.

Regarding claim 46, the applicant has argued that Kobayashi does not teach an EL lamp having connectors in contact with the aluminum foil for powering the EL lamp. The applicant has argued further that the electrodes taught by Kobayashi protrude and therefore would cause the lamp to have a limited size suitable only for displaying information.

The Examiner maintains that Kobayashi does disclose the claimed limitation of electrical connectors in contact with the aluminum foil, as shown in Figure 1 by the lines connected to each element 5 that are connected to a waveform supply.

Therefore the rejection of claim 46 is maintained.

Allowable Subject Matter

9. Claims 44 and 47-50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 44 is found to be allowable because the prior art of record fails to show or suggest an EL lamp with the claimed configuration of layers having cuts of predetermined depth made in the aluminum foil and the barium titanate in order to produce at least two unequal areas to emit light of unequal brightness.

10. Claim 47 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claim 47 is found to be allowable because the prior art of record fails to show or suggest an EL lamp with the claimed configuration of layers having dual scribe lines along a periphery of the lamp, with one scribe line cutting through only the aluminum foil and partially into the barium titanate, and the other scribe line cutting through the aluminum foil, the barium titanate, the phosphor layer, the organic binder layer and terminating at the indium tin oxide layer.

Claims 48-50 would be allowable as they are dependent on an allowable claim (47), but are objected to for being dependent on rejected base claims (40 and 47).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharlene Leurig whose telephone number is (703)305-

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4745. The examiner can normally be reached on Monday through Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on (703)305-4794. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Sharlene Leurig
September 8, 2003



VIP PATEL
PRIMARY EXAMINER